1. The table below gives the life expectancy of a child (at birth) in the United States for selected years from 1920 to 1990.
(Source: Department of Health and Human Services)

Year	1920	1930	1940	1950	1960	1970	1980	1990
Life expectancy	54.1	59.7	62.9	68.2	69.7	70.8	73.7	75.4

Complete the sentence:
Between 1930 and 1940, the life expectancy of a child increased by A)_____ years of life which is an average increase of B)_____ years of life expectancy each year.
Round answers to 2 decimal places if necessary.

2. The table below gives population figures for Mexico for the period from 1980 to 1986.

Population of Mexico: 1980-1986

Year	Population (millions)
1980	67.38
1981	69.13
1982	70.93
1983	72.77
1984	74.66
1985	76.60
1986	78.95

Find A) by how many millions of people the population has increased from 1980 to 1985 and
B) by how many millions of people the population has increased on average each year from 1980 to 1985.
Round answers to 2 decimal places, if necessary.

3. The table below shows tobacco production in the United States for the years 1991-1996.

U.S. Tobacco Production: 1991-96

Year	Tobacco produced (millions of pounds)
1991	1664
1992	1722
1993	1613
1994	1583
1995	1269
1996	1565

A) Find the total change in tobacco production (in millions of pounds) from 1993 to 1995.
B) Determine by how many millions of pounds tobacco production has changed on average each year from 1993 to 1995.
Round answers to 2 decimal places, if necessary.

4. The table shows the number of manatees killed by power boats in Florida from 1986 through 1990.

Year	Manatees killed
1986	33
1987	39
1988	43
1989	50
1990	47

Find A) the total change in the number of manatees killed annually from 1987 to 1989 and
B) the average rate of change of the number of manatees killed annually from 1987 to 1989.
Round answers to 2 decimal places, if necessary.

5. A house valued at $65,000 in 1988 increased in value to $110,000 in 2001
A) What was the absolute change in value?
B) What was the average rate of change, in $ per year?
Round to 2 decimal places, if necessary.

6. If a is measured in miles, b is measured in seconds, and c is measured in dollars, then find the units on the rate of change given by:

$$\frac{\text{Change in a}}{\text{Change in b}}$$

A) dollars per second
B) dollars
C) seconds per dollar
D) seconds

7. The following table shows the number of new AIDS cases reported in Florida from 1986 to 1994.

Year	New AIDS Cases
1986	1031
1987	1633
1988	2650
1989	3448
1990	4018
1991	5471
1992	5086
1993	10958
1994	8617

Calculate the average annual rate of change of new AIDS cases per year from 1988 to 1993.
Round your answer to 2 decimal places.

8. The following table shows the number of new AIDS cases reported in Florida from 1986 to 1994.

Year	New AIDS Cases
1986	1031
1987	1633
1988	2650
1989	3448
1990	4018
1991	5471
1992	5086
1993	10958
1994	8617

Calculate the average annual rate of change of new AIDS cases per year from 1986 to 1994.
Round your answer to 2 decimal places, if necessary.

A) 0.11
B) 8,617
C) 948.25
D) 7,586

9. The number of students enrolled in higher education in the state of Kentucky for the years from 1985 through 1992 is displayed in the following table.

Year	1985	1986	1987	1988	1989	1990	1991
Enrollment (in thousands)	80	82	85	91	95	105	106

Complete the sentence:
Between 1986 and 1989, the enrollment increased by A)_____ students which is an average increase of B)_____ students per year.
Round answers to 2 decimal places if necessary.

10. The number of students enrolled in higher education in the state of Kentucky for the years from 1985 through 1992 is displayed in the following table.

Year	1985	1986	1987	1988	1989	1990	
Enrollment (in thousands)	80	82	85	91	95	105	

Complete the sentence:
Between 1989 and 1992, the enrollment increased by an average of _____ students each year.
Round answers to 2 decimal places if necessary.

A) 15,000
B) 5,000
C) 0.2
D) 110,000

11. The table below is a data set corresponding to the times achieved every 10 meters by Carl Lewis in the 1 meter final of the World Championships in Rome in 1987.

Time (sec)	0.00	1.94	2.96	3.91	4.78	5.64	6.50	7.36	8.22	9.07	9.93
Distance (meters)	0	10	20	30	40	50	60	70	80	90	100

Find Carl Lewis's average speed (in meters per second) from the 30-meter mark to the 60-meter ma
Round your answer to 2 decimal places.

12. The table below is a data set corresponding to the times achieved every 10 meters by Carl Lewis i 100 meter final of the World Championships in Rome in 1987.

Time (sec)	0.00	1.94	2.96	3.91	4.78	5.64	6.50	7.36	8.22	9.07	9.9
Distance (meters)	0	10	20	30	40	50	60	70	80	90	10

Find Carl Lewis's average speed (in meters per second) from the 70-meter mark to the 90-m mark.
Round your answer to 2 decimal places.

A) 11.70
B) 0.09
C) 20
D) 25

13. The table below is a data set corresponding to the times achieved every 10 meters by Carl Lewis in the 100 meter final of the World Championships in Rome in 1987.

Time (sec)	0.00	1.94	2.96	3.91	4.78	5.64	6.50	7.36	8.22	9.07	9.93
Distance (meters)	0	10	20	30	40	50	60	70	80	90	100

Over which of the following distance intervals was Carl Lewis's average speed the fastest?

A) from 60 meters to 90 meters
B) from 70 meters to 80 meters
C) from 20 meters to 40 meters
D) from 10 meters to 40 meters

14. Find the average rate of change from data point C to data point B.

A: (2,3), B: (–7,0), C: (0,–5), D: (–6,–6).

Round your answer to 2 decimal places if necessary..

15. Find the average rate of change between data points A and B.

A: (13,5), B: (–8,0), C: (–3,–1), D: (9,4).

Round your answer to 2 decimal places if necessary..

A) –0.24
B) 4.2
C) –5
D) 0.24

16. The table below gives a girl's height (in inches) as a function of the child's age.

Age (in years)	Girl's Height (in inches)
1	29.8
3	36.8
4	39.4
8	50.9

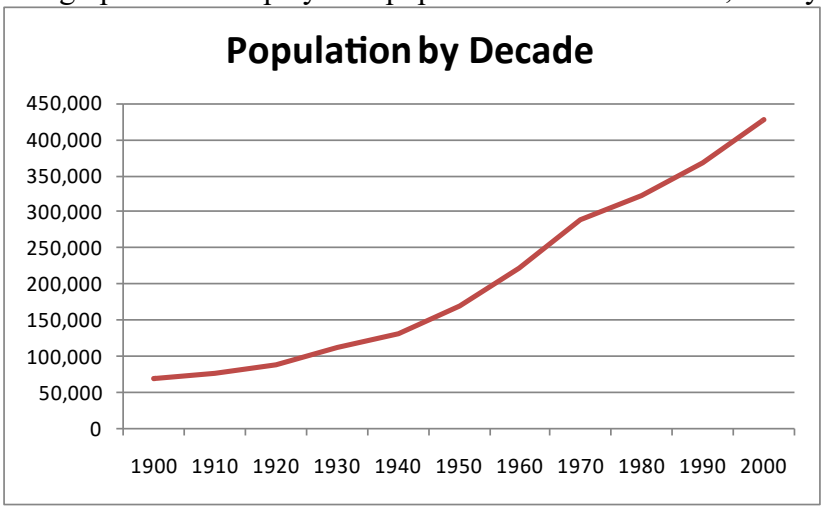
Use the data in the table and the average rates of change of height (in inches) to choose the best prediction for a girl's height (in inches) at age 10.

A) 56.84
B) 61.295
C) 53.87
D) 52.385

17. In the first 8 years of his career, Hall of Fame baseball player Cal Ripken, Jr., had 1,180 base hits.
    A) What was his average rate of hits per year for this eight-year period?
    B) If he continued hitting at this same average rate, how many hits would he accumulate in the first 10 years of his career?
    C) If he continued hitting at this same average rate, how long would it take him to get to 2,000 hits? *Round to the nearest year.*

18. A worker in a fast food restaurant earns a daily gross pay of $72.00 for 8 hours of work.
    A) What is the pay rate, in dollars per hour? *Round your answer to 2 decimal places.*
    B) How much will the worker earn for 33 hours of work?
    C) How many hours will it take the worker to earn $5,500 in gross pay? *Round your answer to the nearest hour.*

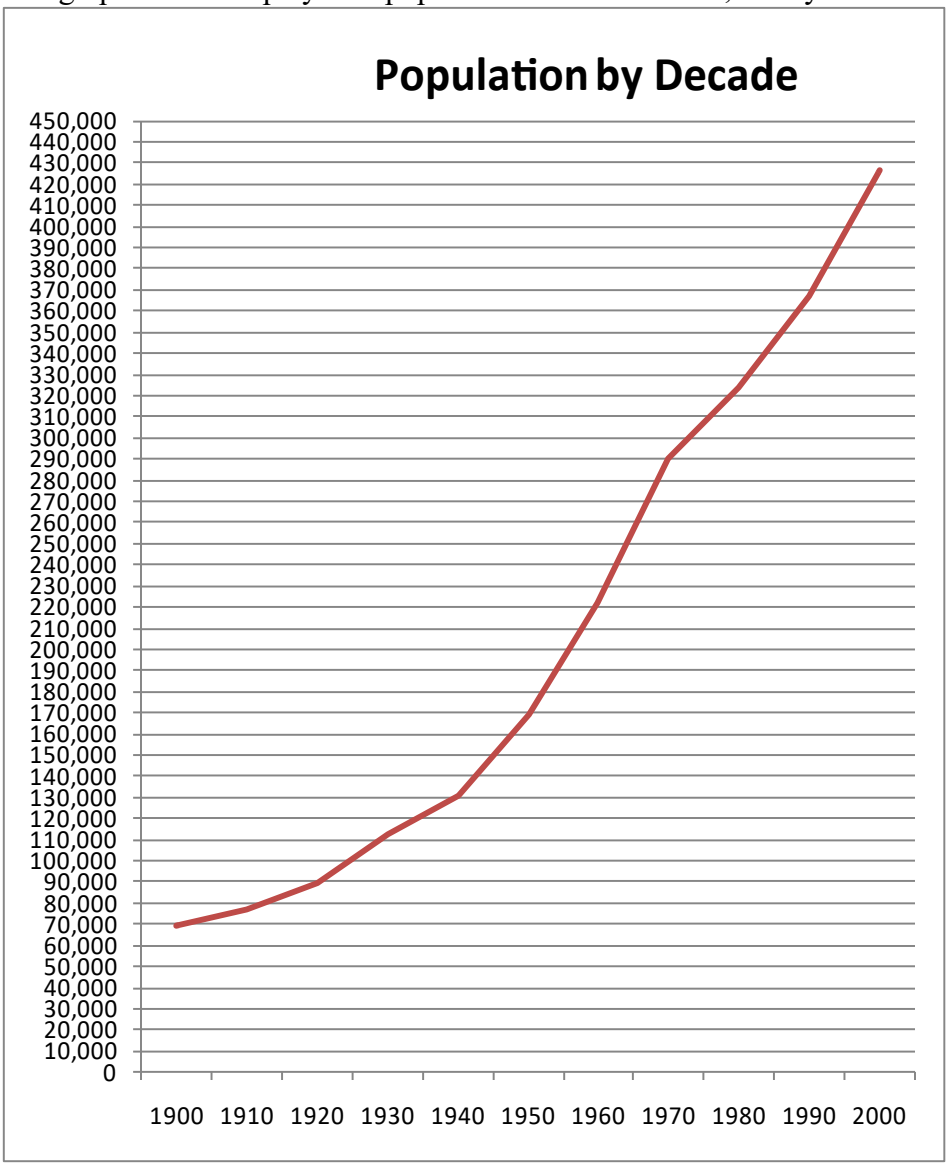
19. The graph below displays the population of the Madison, WI by decade.



What would the units of the rate of change be?

A) People per thousand
B) Years per person
C) People per year
D) Years per thousand

20. The graph below displays the population of the Madison, WI by decade.



Find:

A) The total change from 1940 to 1980. *Round answer to the nearest ten-thousand.*

B) The average rate of change from 1940 to 1980. *Round answer to 2 decimal places if necessary.*

Answer Key

1A. 3.2
1B. 0.32
2A. 9.22
2B. 1.84
3A. –344
3B. –172
4A. 11
4B. 5.5
5A. $ 45,000
5B. 3,461.54
6. C
7. 1,661.60
8. C
9A. 13,000
9B. 4,333.33
10. B
11. 11.58
12. A
13. A
14. –0.71
15. D
16. A
17A. 147.5
17B. 1475
17C. 14
18A. $9.00
18B. $ 297.00
18C. 611 hours
19. C
20A. 190,000
20B. 4,750